

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior listings of claims in the application.

Listing Of Claims:

**Claim 1 (currently amended):** A polymeric membrane for use in an electrochemical apparatus or process comprising:

- a) a polymeric sheet comprising polymer and having a porous structure,
- b) ~~[[said]]~~ the polymeric sheet having distributed in the polymer:
  - i) inorganic particulate;
  - ii) metal~~[[:]]~~;
  - iii) an organic polymer; or
  - iv) a combination thereof, and
- c) said porous structure being at least partially filled with an ion-exchange resin to provide ionic conductance for use in the electrochemical apparatus or process.

**Claim 2 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein an inorganic finely divided powder.

**Claim 3 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein a precious metal.

**Claim 4 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein silica.

**Claim 5 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein fumed silica.

**Claim 6 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein titania.

**Claim 7 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein carbon.

**Claim 8 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein platinum.

**Claim 9 (original):** The membrane of claim 1 wherein the polymeric sheet has distributed therein platinum supported on a substrate.

**Claim 10 (currently amended):** The membrane of claim 1 wherein ~~[[said]]~~ the polymeric sheet is expanded porous PTFE, and said ion-exchange resin fills substantially all pores of the expanded porous PTFE.

**Claim 11 (original):** The membrane of claim 1, wherein the polymeric sheet has inorganic particulate distributed therein.

**Claim 12 (original):** The membrane of claim 1, wherein the polymeric sheet has metal distributed therein.

**Claim 13 (original):** The membrane of claim 1, wherein the polymeric sheet has an organic polymer distributed therein.

**Claim 14 (original):** The membrane of claim 1, wherein the polymeric sheet has a thickness of less than 50 microns.

**Claim 15 (original):** The membrane of claim 1, wherein the membrane is disposed between two fuel cell electrodes.

**Claim 16 (canceled).**

**Claim 17 (currently amended):** The membrane of claim ~~[[16]]~~ 15, wherein the polymeric sheet has a thickness of less than 38 microns, and wherein the membrane that is

disposed between said two electrodes of a fuel cell provides a steady state current of at least 1.78 amps/cm<sup>2</sup> at 0.5 volts, with no humidification of incoming fuel cell air and hydrogen reactants, with air and hydrogen feed both at 40 psig and 25°C, and the fuel cell temperature at 50°C.

**Claim 18 (currently amended):** A composite membrane for use in an electrochemical apparatus or process comprising:

- a) a polymeric sheet comprising polymer and having a porous structure and a thickness of less than 50 microns,
- b) said polymeric sheet having distributed in the polymer inorganic particulate, metal, or a combination thereof;
- c) said porous structure being at least partially filled with a polymeric gel that contains electrolyte to provide ionic conductance for use in the electrochemical apparatus or process.

**Claim 19 (currently amended):** The composite membrane of claim 18, wherein said porous structure is substantially filled with the polymeric gel ~~[[than]]~~ that contains electrolyte.

**Claim 20 (original):** A composite membrane for use in an electrochemical apparatus or process comprising:

- a) a polymeric sheet comprising polymer and having a porous structure,
- b) said polymeric sheet having distributed in the polymer inorganic particulate, metal, or a combination thereof,
- c) said porous structure being at least partially filled with a polymer composition that contains metal salts to provide ionic conductance for use in the electrochemical apparatus or process.

**Claim 21 (currently amended):** The composite membrane of claim 20, wherein said porous structure is substantially filled with ~~[[a]]~~ the polymer composition that contains metal salts.

**Claim 22 (currently amended):** The composite membrane of claim 20, wherein  
[[the]] said polymeric sheet has a thickness less than 50 microns.

**Claim 23 (currently amended):** The composite membrane of claim 22, wherein  
[[the]] said polymeric sheet has a porosity of 40% to 95%.

**Claim 24 (new):** The membrane of claim 1, wherein said ion-exchange resin is  
fluorinated.

**Claim 25 (new):** The membrane of claim 14, wherein the polymeric sheet has a  
thickness between 13 microns and 50 microns.

**Claim 26 (new):** The composite membrane of claim 18, wherein the polymeric gel  
comprises a polymer with a cross-linked structure.